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## TEOREMA.

Hay números cuyo cuadrado se compone de la suma de una serie de cubos. ¿Cuáles son estos números? Formemos la serie de los números naturales principiando por uno y vayamos hasta un número cualquiera, por ejemplo, hasta diez, así.

1	2	3	4	5	6	7	8	9	10
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Debajo de estos números pongamos sus cubos así

1	2	3	4	5	6	7	8	9	10
1	8	27	64	125	216	343	512	729	1000

Sumemos estos cubos de manera que el primero venga á colocarse bajo el primer número, la suma del primero y del segundo, bajo el segundo cubo: la suma, del primero segundo y tercero, bajo el tercero, y así sucesivamente, tendremos

1	2	3	4	5	6	7	8	9	10
1	8	27	64	125	216	343	512	729	1000
1	9	36	100	225	441	784	1296	2025	3025

y encontraremos que la suma de dichos cubos son cuadrados y sus raíces son

1	2	3	4	5	6	7	8	9	10
1	8	27	64	125	216	343	512	729	1000
1	9	36	100	225	441	784	1296	2025	3025
Raíz 1	3	6	10	15	21	28	36	45	55

Consideremos estas raíces veremos que son la suma de los términos de progresiones aritméticas principiando por uno y segundo por los números naturales hasta cualquier número que se desee y desde luego podremos formular el teorema del modo siguiente.

Los cuadrados de los números que indican la suma de los términos de progresiones aritméticas, principiando por uno y siguiendo por los números naturales; dichos cuadrados decimos, son iguales á la suma de los cubos de todos los números que entran en dicha progresión: ver: gr:

300. Es la suma de los términos de una progresión aritmética principiando por uno y acabando por veinte y cuatro y

300 elevado á la segunda potencia =  $1^2 + 2^2 + 3^2 + 4^2 + \dots + 24^2$ .

J. M. MONSANTO.

## TRANSLATION.

### THEOREM.

There are numbers whose square is composed of the sum of a series of cubes. Which are these numbers?

Let us take the series of the primary numbers beginning with one and let us proceed as far as any number, for example, as far as ten, thus

1	2	3	4	5	6	7	8	9	10
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Under these numbers let us place their cubes thus

1	2	3	4	5	6	7	8	9	10
1	8	27	64	125	216	343	512	729	1000

Let us add these cubes in such a way that the first comes to be placed under the first number, the sum of the first and the second under the second cube; the sum of the first, second and third, under the third cube, and so on, we shall have

1	2	3	4	5	6	7	8	9	10
1	8	27	64	125	216	343	512	729	1000
1	9	36	100	225	441	784	1296	2025	3025

and we shall find that the sum of the said cubes are squares, and their roots are

1	2	3	4	5	6	7	8	9	10
1	8	27	64	125	216	343	512	729	1000
1	9	36	100	225	441	784	1296	2025	3025
1	3	6	10	15	21	28	36	45	55

Let us consider these roots and we shall see that they are the sum of the terms of an arithmetical progression beginning with one and continuing through the primary numbers as far as any number desired, and therefore we can formulate the theorem in the following manner:

The squares of the numbers that indicate the sum of the terms of an arithmetical progression, beginning with one and continuing through the primary numbers, said squares, we repeat, are equal to the sum of the cubes of all the numbers that enter in the said progression: for example  $300^2$ .  $300^2$  is the sum of the terms of an arithmetical progression beginning with 1 and ending with 24, and 300 raised to the second power  $= 1^3 + 2^3 + 3^3 + 4^3 + \dots + 24^3$ .

J. M. MONSANTO.

NOTE.—This rare bit of original mathematical work by J. M. Monsanto, with its translation, was sent to us by Dr. Halsted.

ED. F.